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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,171	09/28/2001	Katsuyuki Yamada	65988 CCD	5507

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COOPER & DUNHAM LLP
1185 Ave. of the Americas
New York, NY 10036

EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,171

Applicant(s)

YAMADA ET AL.

Examiner

Martin J Angebranndt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 17-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/28/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/20/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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The response of the applicant has been read and given careful consideration. Responses to the arguments are presented below. The examiners appreciate the applicant citing the patent documents corresponding to those crossed out in a previous IDS. The response of the applicant concerning the number of references cited is noted.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim should indicate that the deposition is a sputter deposition and that the heating is from the deposition process. See [0220-0224] in prepub. While the examiner appreciates that modes of deposition other than sputtering are disclosed as discussed by the applicant [0097], it is not clear that these increase the temperature of the substrate in the manner described. The portion of the prepub cited by the applicant [0059] only describes DC or Rf sputtering. From the example cited by the examiner [0220-0224], it appears that the heating is due to sputtering process. There are no other means for performing the heating disclosed by the applicant and this is to clearly indicate the source of the heating and differentiate it from situations where a separate heating means is provided.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is no means for heating the substrate in the manner described in the claim. No separate heating means is disclosed and there is no description distinguishing the conditions of example 51 of the instant specification and comparative examples 51 and 52. This claimed invention is not enabled for one of ordinary skill in the art.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 26 is rejected under 35 U.S.C. 102(b) as being fully anticipated by Yuzurihara et al. JP 11-254833.

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See example 10, which was formed using a sputtering power of 300 W with an argon flow of 0.5 sccm, which is similar to the conditions used in example 51 of the instant specification.

In the analysis of the instant specification with respect to claim 26, the substrate temperature starts at room temperature and there is no heating element or controller described. The examiner is of the opinion that the language of the claims describes the heating caused by the sputter deposition process **in the absence of cooling**.

The applicant states that the heating rate is not disclosed. The examiner notes the similarity between the sputtering conditions of the example cited in the prepub of the instant application and that of the reference and asserts that the heating is inherent in the sputtering process. JP 11-254833 is the Japanese equivalent of Yuzurihara et al. '167, but has a better date.

The examiner notes that Morimoto et al. '588 states that it is known that in the case of forming the recording layer by sputtering, "the substrate is apt to be heated during the sputtering operation and, hence, it is preferable to sufficiently cool the substrate" (9/1-17). With respect to the comparative example referred to by the applicant, for the purposes of the anticipation rejections, the examiner has assumed that unspecified measures have been taken to ensure that heating does not occur due to the sputtering process or to offset any heating by the sputtering process (ie. cooling the substrate as discussed by Morimoto et al. '588 or Nishimura JP 06-330308).

8. Claim 26 is rejected under 35 U.S.C. 102(e) as being fully anticipated by Ito et al. US 2001/0041240.

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See example 1, which was formed using a sputtering power of 500 W with a gas pressure of 2 mTorr, which is similar to the conditions used in example 51 of the instant specification.

9. Claim 26 is rejected under 35 U.S.C. 102(e) as being fully anticipated by Nakamura et al. '958.

See example 1, which was formed using a sputtering power of 500 W with a gas pressure of 3 mTorr with a flow rate of 10 sccm, which is similar to the conditions used in example 51 of the instant specification.

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over **either** Yuzurihara et al. JP 11-254833, Ito et al. US 2001/0041240 **or** Nakamura et al. '958, in view of Nakanishi et al. '232 and Amioka et al. JP 10-064128.

Nakanishi et al. '232 teach the heating of the recording layer at 10 degree C/min to reach the transition temperature.

Amioka et al. JP 10-064128 teach heating the substrate during deposition to obviate the need for a separate initialization step. (abstract) Disclosed materials include Ag-In-Sb-Te [0009].

While it is clear that heating inherently does occur during the sputtering processes used by **either** Yuzurihara et al. JP 11-254833, Ito et al. US 2001/0041240 **or** Nakamura et al. '958, it may be that the conditions (ie spacing between the target and substrate, etc) used in **either** Yuzurihara et al. JP 11-254833, Ito et al. US 2001/0041240 **or** Nakamura et al. '958 are such that the heating is not within the range set forth in the claims. In this case, the examiner holds that it would have been obvious to one skilled in the art to modify the processes of **either** Yuzurihara et al. JP 11-254833, Ito et al. US 2001/0041240 **or** Nakamura et al. '958 by adding

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heating means such as those taught by Nakanishi et al. '232 and Amioka et al. JP 10-064128 to heat the medium at a rate of 10 degree C/min as taught by Nakanishi et al. '232 to initialize the medium during deposition and obviate the need for a separate step as discussed by Amioka et al. JP 10-064128.

11. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. '543.

Ando et al. '543 disclose GeTeSb phase change optical recording media (RAM) (8/53-58). The lead-in area is disclosed as containing embossed information including linear velocity upon recording and erasure. (10/60-64)

It would have been obvious to include the linear velocity for recording information in the lead in area of the optical disc described in column 8 as this is considered conventional to provide this information to the readout/recording system.

The applicant contends that the media of Ando et al. '543 or Hisotomi et al. WO 99/38168, which differ from those disclosed or claimed do not have the performance properties recited in the claims. The examiner notes that the instant specification at 0012 and 0019 describe GeTeSb recording layers as useful in the claimed media. It is not clear from the record, what confers the properties recited in the claims (ie if this performance is due to the composition of the recording layer, the thicknesses of the layers or the structure of the media.). The applicant is invited to comment beyond unsupported conclusatory statements on the media embraced by the scope of coverage sought and how the media of Ando et al. '543 or Hisotomi et al. WO 99/38168 fail to meet these performance limitations.

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12. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hisotomi et al. WO 99/38168.

Hisotomi et al. WO 99/38168 disclose GeTeSb phase change optical recording media (RAM) (page 6). The lead-in area is disclosed as containing embossed information including linear velocity upon recording and erasure. (paragraph bridging pages 7-8)

It would have been obvious to include the linear velocity for recording information in the lead in area of the optical disc described in column 8 as this is considered conventional to provide this information to the readout/recording system.

13. Claims 1-14 and 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Ide et al. EP 735158 or Yamada et al. EP 1058249, in view of Ando et al. '543 or Hisotomi et al. WO 99/38168.

Ide et al. EP 735158 in the examples have a polycarbonate substrate, 200 nm ZnO-SiO₂ layer, a 25 nm recording layer, a 30 nm ZnO-SiO₂ layer, a 100 nm reflective layer and a protective layer. The AgInTeSb compositions of examples 5 and 7 shown in table 1 are similar to the compositions of example 51 and 54 of the instant specification. The addition of various materials including B,N,C,P,Si, O,S, Se, Al, Ti, V, Mn, Fe, Co, Ni, Cu, Zn, Ga, Sn, Pd, Pt and Au as impurities to improve the performance and the reliability of the recording layer is disclosed. (7/1-57).

Yamada et al. EP 1058249 in examples have a polycarbonate substrate, 50-110 nm ZnS-SiO₂ layer, a 15-20 nm recording layer, a 25-30 nm ZnS-SiO₂ layer, a 120+ nm reflective layer and a protective layer. The AgInTeSb compositions of examples 4 shown in table 1 is similar to the compositions of example 54 of the instant specification. The addition of various materials

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including B,N,C,Si,Ge and Sn as impurities in amounts of up to 5% to improve the performance and the reliability of the recording layer is disclosed. [0046]. Also note examples 6-8 which use Ge, C and N as impurities.

Ando et al. '543 disclose phase change optical recording media (RAM) (8/53-58). The lead-in area is disclosed as containing embossed information including linear velocity upon recording and erasure. (10/60-64)

Hisotomi et al. WO 99/38168 disclose GeTeSb phase change optical recording media (RAM) (page 6). The lead-in area is disclosed as containing embossed information including linear velocity upon recording and erasure. (paragraph bridging pages 7-8)

It would have been obvious to one skilled in the art to modify the teachings/media of either Ide et al. EP 735158 or Yamada et al. EP 1058249 by embossing information concerning the linear velocities that the medium should be used at as taught by Ando et al. '543 or Hisotomi et al. WO 99/38168 to enable the recording system to immediately use the medium at the proper powers and rotational rates without testing with a reasonable expectation of success.

The rejection based at least in part upon Yamada et al. EP 1280142 are withdrawn due to the date of publication as pointed out by the applicant. This document was cited by the applicant on the IDS of 6/30/03. The examiner agrees with this position, but holds that the benefit of having the performance information embossed as part of the medium would be useful in any phase change recording medium and holds that the addition of this embossed information to other media within the scope of the claims would have been obvious as set forth in this rejection and those below.

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14. Claims 1-14, 17-25 and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. JP 2000-079761, in view of Ando et al. '543 or Hisotomi et al. WO 99/38168.

Yamada et al. JP 2000-079761 (machine translation attached) in example 3 has a polycarbonate substrate, 103 nm ZnS-SiO₂ layer, a 16 nm recording Ag_{4.7}Ga_{4.7}Ge_{4.6}Sb_{61.3}Te_{24.7} layer, a 41 nm ZnS-SiO₂ layer, a 200 nm reflective layer and a protective layer which is embraced by the language of claim 27. [0042]. Note Ag is considered an impurity.

It would have been obvious to one skilled in the art to modify the teachings/media of Yamada et al. JP 2000-079761 by embossing information concerning the linear velocities that the medium should be used at as taught by Ando et al. '543 or Hisotomi et al. WO 99/38168 to enable the recording system to immediately use the medium at the proper powers and rotational rates without testing with a reasonable expectation of success.

15. Claims 1-14, 17-25 and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. JP 2000-079761, in view of Ando et al. '543 or Hisotomi et al. WO 99/38168.

Nobukuni et al. EP 1056077 in example 3 has a polycarbonate substrate, 100 nm ZnS-SiO₂ layer, a 20 nm recording Ga₅Ge₅Sb₆₈Te₂₂ layer, a 40 nm ZnS-SiO₂ layer, a 250 nm reflective layer and a protective layer which is embraced by the language of claim 27. [0464].

The addition of various materials including In, Ga, Si, Sn, Pb, Pd, Pt, Zn, Au, Ag, Zr, Hf, V, Nb, Ta, Cr, Co, Bi, N, O, S and rare earths as impurities to improve the performance and the reliability of the recording layer is disclosed [0073-0074].

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It would have been obvious to one skilled in the art to modify the teachings/media of Yamada et al. JP 2000-079761 by embossing information concerning the linear velocities that the medium should be used at as taught by Ando et al. '543 or Hisotomi et al. WO 99/38168 to enable the recording system to immediately use the medium at the proper powers and rotational rates without testing with a reasonable expectation of success.

16. Claims 1-14 and 17-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. EP 0898272, in view of Ando et al. '543 or Hisotomi et al. WO 99/38168.

Yamada et al. EP 0898272 in examples 8 and 9 (table 2) have a polycarbonate substrate, 70-80 nm ZnS-SiO₂ layer, a 20-25 nm recording Ag₁In₆Sb₆₃₋₆₅Te₂₃N₂₋₅ layer, a 25 nm ZnS-SiO₂ layer, a 120-140 nm reflective layer and a protective layer which is similar to the compositions of table 3 of the instant specification, specifically examples 21 and 22. The addition of various materials including Bi, Ga, Ge, Ag, In, N, C, O, S and Si as impurities to improve the performance and the reliability of the recording layer is disclosed. [0077].

It would have been obvious to one skilled in the art to modify the teachings/media of Yamada et al. EP 0898272 by embossing information concerning the linear velocities that the medium should be used at as taught by Ando et al. '543 or Hisotomi et al. WO 99/38168 to enable the recording system to immediately use the medium at the proper powers and rotational rates without testing with a reasonable expectation of success.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yuzurihara et al. EP 919997 and Yamada et al. EP 717404 teach various InAgSbTe phase change optical recording media similar to those disclosed and claimed.

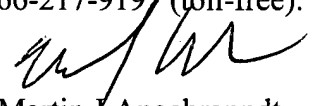
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18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 571-272-1378.

The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Martin J Angebrannndt
Primary Examiner
Art Unit 1756

12/20/04
~~04/13/2004~~